

**WHAT IS CLAIMED IS:**

10/048, 072

1. A method of stimulating an efficient CD8<sup>+</sup> response in a human infected with a HIV or HTLV-1 retrovirus said method comprising:
    - administering to the human, a nucleic acid-based vaccine, which enters the cells of the human and intracellularly produces HIV- or HTLV-1-specific peptides for presentation on the cell's MHC class I molecules where said peptides are presented in an amount sufficient to stimulate a protective CD8<sup>+</sup> response and
    - where said human
      - i. has a viral load of less than 10,000 viral copies per ml of plasma and a CD4<sup>+</sup> cell count of above 500 cells/ml, and
      - ii. has been treated with one or more anti-viral agents, which contributed to a lower viral copy and higher CD4<sup>+</sup> cell count than before treatment.
  2. A method of claim 1 wherein the human has been treated with anti-viral agents, which resulted in the human having a viral load of less than 1,000 viral copies per ml of blood serum and a CD4<sup>+</sup> cell count of above 500 cells/ml.
  3. A method of claim 2 wherein the anti-viral agents comprise a combination of protease inhibitors and inhibitors of reverse transcriptase.
  4. A method of claim 1 wherein the vaccine is a DNA based vaccine.
  5. A method of claim 1 wherein the vaccine is an attenuated recombinant virus.
  6. A method of claim 5 wherein the vaccine is an attenuated pox virus.
  7. A method of claim 6 wherein the attenuated pox virus is selected from the group consisting of NYVAC and ALVAC.
  8. A method of claim 6 wherein the attenuated pox virus is MVA.

9. A method of claim 1 where the vaccine is administered a second time.

10. A method of claim 1 wherein the HIV- or HTLV-1-specific peptides are structural viral peptides

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11. A method of claim 1 wherein the HIV- or HTLV-1-specific peptides are non-structural viral peptides..

12. A method of claim 1 wherein the vaccine further comprises an adjuvant.

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13. A method of claim 1 further comprising administering interleukin 2 or  
CD40 ligand in an amount sufficient to potentiate the CD8<sup>+</sup> response.

14. A method of claim 1 where the person has been infected with HIV and has demonstrated repeated and sustained proliferative T-cell responses to gp120 envelope protein.

15. A method of claim 14 where the person has demonstrated repeated and sustained proliferative T-cell responses to p24 gag antigen.

16. A method of claim 1 where the person is infected with HIV and is further tested by a skin test for a hypersensitive response to p24 gag antigen.

17. A method of claim 1 where the person is infected with HIV and is further tested  
25 by a skin test for a hypersensitive response to gp120 envelope antigen.

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